

The Claims

1. A precision dispensing tip for use with precision dispensing apparatus for delivering controlled amounts of viscous fluid to a selected location comprising:

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- a) a body having an inlet at one end adapted for connection in fluid communication with precision dispensing apparatus and having an outlet at another end of the body;
 - b) a fluid conducting passage in the body for connecting the inlet to the outlet, the passage having a first portion converging in a direction immediately from the inlet to an intermediate location in the body and a second portion of constant diameter extending from the intermediate location to the outlet;
 - c) so that the passage conducts fluid from the inlet to the outlet in a continuous and uninterrupted manner and in a manner avoiding introduction of turbulence to fluid flow in the tip; and
 - d) wherein the body has a longitudinal axis and the first and second portions extend along the axis and wherein the outlet has a diameter such that the diameter of a drop of viscous fluid leaving the outlet is directly proportional to the ratio of the axial length of the second portion to the axial length of the first portion.

2. A dispensing tip according to claim 1, wherein the second portion of the passage has a diameter in a range from about 0.003 inch to about 0.030 inch.

3. A dispensing tip according to claim 1, wherein the body is of ceramic material.

4. A dispensing tip according to claim 1, wherein the body is of injection molded ceramic material.

5. A dispensing tip according to claim 1, wherein the body is of injection molded zirconia ceramic material.

6. A dispensing tip according to claim 1, further comprising a protective housing.

C/ 7. A dispensing tip according to claim 6, further including a standoff member extending from the housing for contacting a surface to which fluid is to be dispensed for spacing the outlet of the tip from the surface.

9. A precision dispensing tip for use with precision dispensing apparatus for delivering controlled amounts of fluid to a selected location comprising:

- a) a monolithic body of ceramic material having an inlet at one end adapted for connection in fluid communication with precision dispensing apparatus and having an outlet at another end of the body; and

- b) a fluid conducting passage in the body for connecting the inlet to the outlet, the passage being shaped to conduct fluid from the inlet to the outlet in a continuous and uninterrupted manner, said passage having a portion converging in a direction immediately from the inlet and extending toward the outlet.

10. A dispensing tip according to claim 9, wherein the body is of injection molded ceramic material.

11. a dispensing tip according to claim 9, wherein the body is of injection molded zirconia ceramic material.

C 12. A dispensing tip according to claim 9, wherein the outlet has a diameter in the range from about 0.003 inch to about 0.030 inch.

14. A dispensing tip according to claim 9, in combination with a protective housing.

15. A dispensing tip according to claim 14, further including a standoff member extending from the housing for contacting a surface to which fluid is to be dispensed for spacing the outlet of the tip from the surface.

16. A dispensing tip according to claim 9, wherein the body has a longitudinal axis, the converging portion of the passage being a first passage portion, there being a second passage portion extending between the first passage portion and the outlet, the first and second passage portions extending along the axis and wherein the diameter of a drop of fluid leaving the outlet is directly proportional to the ratio of the axial length of the second passage portion to the axial length of the first passage portion.
